WHAT IS CLAIMED IS:

1. A method for replicating locally a signal generated remotely, comprising:
estimating a first parameter of the signal remotely;
estimating a second parameter of the signal locally, the second parameter being different from the first parameter; and
modifying a second signal to replicate the signal as a function of the estimated first and second parameters.

2. The method of claim 1 wherein the second signal comprises white noise.

3. The method of claim 1 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

4. The method of claim 3 wherein the modification of the second signal comprises scaling the second signal as a function of the estimated energy, and filtering the second signal as a function of the estimated spectral characteristics.

5. The method of claim 4 wherein the second signal comprises white noise.

6. The method of claim 4 wherein the estimation of the spectral characteristics comprises estimating filter coefficients which model the spectral shape of the signal, the filtering of the second signal being a function of the estimated filter coefficients.

7. The method of claim 6 wherein the estimation of the filter coefficients comprises calculating autocorrelation coefficients, the filter coefficients being a function of the autocorrelation coefficients.

8. The method of claim 1 wherein the estimation of the filter coefficients comprises calculating linear prediction coefficients, the filter coefficients being a function of the linear prediction coefficients.

9. The method of claim 1 further comprising estimating the first parameter locally, the estimation of the second parameter being performed only during a time period when the locally estimated first parameter satisfies a criteria.

10. The method of claim 9 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

11. The method of claim 10 wherein the criteria is satisfied only when the difference between the remotely estimated energy and the locally estimated energy is less than a threshold.

12. A method for replicating, at a near end, far end background noise of a signal generated by a far end, comprising:

estimating a first parameter of the far end background noise at the far end;

transmitting the first parameter and the signal from the far end to the near end;

estimating a second parameter different from the first parameter of the far end background noise at the near end; and

modifying a noise signal to replicate the far end background noise as a function of the estimated first and second parameters.

13. The method of claim 12 wherein the noise signal comprises white noise.

14. The method of claim 12 wherein the first parameter comprises energy of the far end background noise and the second parameter comprises spectral characteristics of the far end background noise.

15. The method of claim 14 wherein the modification of the noise signal comprises scaling the noise signal as a function of the estimated energy, and filtering the noise signal as a function of the estimated spectral characteristics.

16. The method of claim 15 wherein the estimation of the spectral characteristics comprises estimating filter coefficients which model the spectral shape of the far end background noise, the filtering of the noise signal being a function of the estimated filter coefficients.

17. The method of claim 16 wherein the estimation of the filter coefficients comprises calculating autocorrelation coefficients, the filter coefficients being a function of the autocorrelation coefficients.

18. The method of claim 17 wherein the estimation of the filter coefficients comprises calculating linear prediction coefficients, the filter coefficients being a function of the linear prediction coefficients.

19. The method of claim 12 further comprising estimating the first parameter of the background noise of the transmitted signal at the near end, the estimation of the second parameter at the near end being performed only during a time period when the first parameter estimated at the near end satisfies a criteria.

20. The method of claim 19 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

21. The method of claim 20 wherein the criteria is satisfied only when the difference between the energy estimated at the far end and the energy estimated at the near end is less than a threshold.

22. A local receiver for replicating a signal generated by a remote transmitter, the local receiver adapted to receive the signal and a first parameter of the signal, the local receiver, comprising:

a signal estimator to estimate a second parameter of the signal different from the first parameter; and

a signal generator to modify a second signal to replicate the signal as a function of the first and estimated second parameters.

23. The receiver of claim 22 wherein the second signal comprises white noise.

24. The receiver of claim 22 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

25. The receiver of claim 24 wherein the signal generator comprises a power controller to scale the second signal as a function of the energy, and a synthesis filter to filter the second signal as a function of the estimated spectral characteristics.

26. The receiver of claim 25 wherein the signal generator comprises a noise source to generate the second signal.

27. The receiver of claim 26 wherein the noise source comprises a white noise generator.

28. The receiver of claim 24 wherein the signal estimator comprises autocorrelation logic to calculate autocorrelation coefficients for the signal, the filter logic generating linear

prediction coefficients as a function of the autocorrelation coefficients, the filtering of the second signal by the synthesis filter being a function of the linear prediction coefficients.

29. The receiver of claim 22 wherein the signal estimator comprises an estimator to estimate the first parameter the of the signal at the receiver, the estimation of the second parameter being performed only during a time period when the estimated first parameter at the receiver satisfies a criteria.

30. The receiver of claim 29 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

31. The receiver of claim 30 wherein the criteria is satisfied only when the difference between the energy estimated by the signal estimator and the energy received by the receiver is less than a threshold.

32. A near end receiver for replicating far end background noise in a signal generated by a far end transmitter, the near end receiver being adapted to receive the signal and a first parameter of the signal, the near end receiver comprising:

a noise estimator to estimate a second parameter of the far end background noise different from the first parameter of the far end background noise; and

a noise generator to modify a noise signal to replicate the far end background noise as a function of the first and estimated second parameters.

33. The receiver of claim 32 wherein the noise generator comprises a noise source to generate the noise signal.

34. The receiver of claim 32 wherein the noise source comprises a white noise source.

35. The receiver of claim 32 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

36. The receiver of claim 35 wherein the noise generator comprises a power controller to scale the noise signal as a function of the energy, and a synthesis filter to filter the noise signal as a function of the estimated spectral characteristics.

37. The receiver of claim 36 wherein the noise estimator comprises autocorrelation logic to calculate autocorrelation coefficients for the far end background noise, and filter logic

to generate linear prediction coefficients as a function of the autocorrelation coefficients, the estimated spectral characteristics comprising the linear prediction coefficients.

38. The receiver of claim 32 wherein the noise estimator comprises an estimator to estimate the first parameter the of the signal at the receiver, the estimation of the second parameter being performed only during a time period when the first parameter estimated at the receiver satisfies a criteria.

39. The receiver of claim 38 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

40. The receiver of claim 39 wherein the criteria is satisfied only when the difference between the energy estimated by the noise estimator and the energy received by the receiver is less than a threshold.

41. A transmission system, comprising:

a far end transmitter which generates a far end signal having background noise, the far end transmitter having a noise estimator to estimate a first parameter of the background noise; and

a near end receiver coupled to the far end transmitter adapted to receive the signal and the estimated first parameter, the near end receiver having a noise estimator to estimate a second parameter different from the first parameter of the background noise of the received far end signal, and a noise generator to modify a noise signal to replicate the background noise as a function of the estimated first and second parameters.

42. The transmission system of claim 41 wherein the noise generator comprises a noise source to generate the noise signal.

43. The transmission system of claim 42 wherein the noise source comprises a white noise source.

44. The transmission system of claim 41 wherein the first parameter comprises energy of the background noise and the second parameter comprises spectral characteristics of the background noise.

45. The transmission system of claim 44 wherein the noise generator comprises a power controller to scale the noise signal as a function of the estimated energy, and a synthesis filter to filter the noise signal as a function of the estimated spectral characteristics.

46. The transmission system of claim 45 wherein the noise estimator of the receiver comprises autocorrelation logic to calculate autocorrelation coefficients for the background noise, and filter logic to generate linear prediction coefficients as a function of the autocorrelation coefficients, the estimated spectral characteristics comprising the linear prediction coefficients.

47. The transmission system of claim 41 further comprising a network coupling the far end transmitter to the near end receiver.

48. The transmission system of claim 47 wherein the far end transmitter further comprises a packetization engine to format the far end signal and the estimated first parameter into a packet for transmission over the network, and the near end receiver further comprises a depacketization engine to depacketize the far end signal and the estimated first parameter received from the network before the estimated first parameter is coupled to the noise generator.

49. The transmission system of claim 47 further comprising a far end telephony device coupled to the far end transmitter, and a near end telephony device coupled to the near end receiver, the near end telephony device being adapted to receive the replicated far end background noise generated by the noise generator.

50. The transmission system of claim 49 wherein the near end and far end telephony devices each comprises a telephone.

51. The transmission system of claim 41 wherein the noise estimator of the receiver comprises an estimator to estimate the first parameter the of the signal, the estimation of the second parameter being performed only during a time period when the first parameter estimated at the receiver satisfies a criteria.

52. The transmission system of claim 51 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

53. The transmission system of claim 52 wherein the criteria is satisfied only when the difference between the energy estimated by the noise estimator of the receiver and the energy estimated by the noise estimator of the transmitter is less than a threshold.

54. The transmission system of claim 51 wherein the receiver further comprises a voice activity detector to detect voice in the signal, the voice activity detector having a hangover period extending in time from the end of voice in the signal to a time in which the voice activity detector declares that the signal is without voice, the estimator of the receiver estimating the first parameter of the signal only during the hangover period.

55. A method for replicating far end background noise at a near end, comprising:

generating, at the far end, a far end signal having voice and the background noise;

estimating, at the far end, a first parameter of the background noise without voice;

transmitting the signal and the estimated first parameter of the background noise from the far end to the near end;

estimating, at the near end, a second parameter different from the first parameter of the background noise; and

modifying, at the near end, a noise signal to replicate the background noise as a function of the estimated first and second parameters.

56. The method of claim 55 wherein the noise signal comprises white noise.

57. The method of claim 55 wherein the first parameter comprises energy of the background noise and the second parameter comprises spectral characteristics of the background noise.

58. The method of claim 57 wherein the modification of the noise signal comprises scaling the noise signal as a function of the estimated energy, and filtering the noise signal as a function of the estimated spectral characteristics.

59. The method of claim 58 wherein the estimation of the spectral characteristics comprises estimating filter coefficients which model the spectral shape of the background noise, the filtering of the noise signal being a function of the estimated filter coefficients.

60. The method of claim 59 wherein the estimation of the filter coefficients comprises calculating autocorrelation coefficients, the filter coefficients being a function of the autocorrelation coefficients.

61. The method of claim 59 wherein the estimation of the filter coefficients comprises calculating linear prediction coefficients, the filter coefficients being a function of the linear prediction coefficients.

62. The transmission system of claim 55 wherein the transmission of voice comprises transmitting voice over a network.

63. The method of claim 55 further comprising transmitting the replicated far end background noise from the near end receiver to a telephony device.

64. The method of claim 63 wherein the near end telephony device comprises a telephone.

65. The method of claim 55 further comprising estimating, at the near end, the first parameter, the estimation of the second parameter being performed only during a time period when the first parameter estimated at the near end satisfies a criteria.

66. The method of claim 65 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

67. The method of claim 66 wherein the criteria is satisfied only when the difference between the energy estimated at the far end and the energy estimated at the near end is less than a threshold.

68. Computer-readable media embodying a program of instructions executable by a computer to perform a method for replicating locally a signal generated remotely, the method comprising:

estimating a first parameter of the signal remotely;

estimating a second parameter of the signal locally, the second parameter being different from the first parameter; and

modifying a second signal to replicate the signal as a function of the estimated first and second parameters.

69. The computer-readable media of claim 68 wherein the second signal comprises white noise.

70. The computer-readable media of claim 68 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

71. The computer-readable media of claim 70 wherein the modification of the second signal comprises scaling the second signal as a function of the estimated energy, and filtering the second signal as a function of the estimated spectral characteristics.

72. The computer-readable media of claim 71 wherein the second signal comprises white noise.

73. The computer-readable media of claim 71 wherein the estimation of the spectral characteristics comprises estimating filter coefficients which model the spectral shape of the signal, the filtering of the second signal being a function of the estimated filter coefficients.

74. The computer-readable media of claim 73 wherein the estimation of the filter coefficients comprises calculating autocorrelation coefficients, the filter coefficients being a function of the autocorrelation coefficients.

75. The computer-readable media of claim 68 wherein the estimation of the filter coefficients comprises calculating linear prediction coefficients, the filter coefficients being a function of the linear prediction coefficients.

76. The computer-readable media of claim 68 further comprising estimating the first parameter locally, the estimation of the second parameter being performed only during a time period when the locally estimated first parameter satisfies a criteria.

77. The computer-readable media of claim 76 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

78. The computer-readable media of claim 77 wherein the criteria is satisfied only when the difference between the remotely estimated energy and the locally estimated energy is less than a threshold.

79. Computer-readable media embodying a program of instructions executable by a computer to perform a method for replicating, at a near, far end background noise of a signal generated at a far end, the method comprising:

estimating a first parameter of the far end background noise at the far end;

transmitting the first parameter and the signal from the far end to the near end;

estimating a second parameter different from the first parameter of the far end background noise at the near end; and

modifying a noise signal to replicate the far end background noise as a function of the estimated first and second parameters.

80. The computer-readable media of claim 79 wherein the noise signal comprises white noise.

81. The computer-readable media of claim 79 wherein the first parameter comprises energy of the far end background noise and the second parameter comprises spectral characteristics of the far end background noise.

82. The computer-readable media of claim 81 wherein the modification of the noise signal comprises scaling the noise signal as a function of the estimated energy, and filtering the noise signal as a function of the estimated spectral characteristics.

83. The computer-readable media of claim 82 wherein the estimation of the spectral characteristics comprises estimating filter coefficients which model the spectral shape of the far end background noise, the filtering of the noise signal being a function of the estimated filter coefficients.

84. The computer-readable media of claim 83 wherein the estimation of the filter coefficients comprises calculating autocorrelation coefficients, the filter coefficients being a function of the autocorrelation coefficients.

85. The computer-readable media of claim 84 wherein the estimation of the filter coefficients comprises calculating linear prediction coefficients, the filter coefficients being a function of the linear prediction coefficients.

86. The computer-readable media of claim 79 further comprising estimating the first parameter of the background noise of the transmitted signal at the near end, the estimation of the second parameter at the near end being performed only during a time period when the first parameter estimated at the near end satisfies a criteria.

87. The computer-readable media of claim 86 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

88. The computer-readable media of claim 87 wherein the criteria is satisfied only when the difference between the energy estimated at the far end and the energy estimated at the near end is less than a threshold.

89. A local receiver for replicating a signal generated by a remote transmitter, the local receiver adapted to receive the signal and a first parameter of the signal, the local receiver, comprising:

estimation means for estimating a second parameter of the signal different from the first parameter; and

replication means for modifying a second signal to replicate the signal as a function of the first and estimated second parameters.

90. The receiver of claim 89 wherein the second signal comprises white noise.

91. The receiver of claim 89 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

92. The receiver of claim 91 wherein the replication means comprises means for scaling the second signal as a function of the estimated energy, and filter means for filtering the second signal as a function of the estimated spectral characteristics.

93. The receiver of claim 92 wherein the replication means comprises a noise source to generate the second signal.

94. The receiver of claim 93 wherein the noise source comprises a white noise generator.

95. The receiver of claim 92 wherein the replication means comprises means for calculating autocorrelation coefficients for the signal, and means for generating linear prediction coefficients as a function of the autocorrelation coefficients, the filtering of the second signal by the filtering means being a function of the linear prediction coefficients.

96. The receiver of claim 89 wherein the estimation means comprises means for estimating the first parameter the of the signal at the receiver, the estimation of the second parameter being performed only during a time period when the estimated first parameter at the receiver satisfies a criteria.

97. The receiver of claim 96 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

98. The receiver of claim 97 wherein the criteria is satisfied only when the difference between the energy estimated by the estimation means and the energy received by the receiver is less than a threshold.

99. A near end receiver for replicating far end background noise in a signal generated by a far end transmitter, the near end receiver being adapted to receive the signal and a first parameter of the signal, the near end receiver comprising:

estimation means for estimating a second parameter of the far end background noise different from the first parameter of the far end background noise; and

replication means to modify a noise signal to replicate the far end background noise as a function of the first and estimated second parameters.

100. The receiver of claim 99 wherein the replication means comprises a noise source to generate the noise signal.

101. The receiver of claim 100 wherein the noise source comprises a white noise source.

102. The receiver of claim 99 wherein the first parameter comprises energy of the far end background noise and the second parameter comprises spectral characteristics of the far end background noise.

103. The receiver of claim 102 wherein the replication means comprises means for scaling the noise signal as a function of the estimated energy, and filter means for filtering the noise signal as a function of the estimated spectral characteristics.

104. The receiver of claim 103 wherein the estimation means comprises means for calculating autocorrelation coefficients for the far end background noise, and means for generating linear prediction coefficients as a function of the autocorrelation coefficients, the estimated spectral characteristics comprising the linear prediction coefficients.

105. The receiver of claim 99 wherein the estimation means comprises means for estimating the first parameter the of the signal at the receiver, the estimation of the second

parameter being performed only during a time period when the first parameter estimated at the receiver satisfies a criteria.

106. The receiver of claim 105 wherein the first parameter comprises energy of the signal and the second parameter comprises spectral characteristics of the signal.

107. The receiver of claim 106 wherein the criteria is satisfied only when the difference between the energy estimated by the estimation means and the energy received by the receiver is less than a threshold.